Upgrading to Tiger Server

Session 620

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Enterprise IT

Upgrading to Tiger Server

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http://developer.apple.com/wwdc2005/

Introduction

- Preparing to upgrade from Jaguar or Panther to Tiger Server
- Focus on critical aspects of the transition
  - Service configurations
  - Password Server and KDC
  - Users and Groups
- Mac OS X Server Upgrading and Migrating Guide will assist you in this process

What You'll Learn

- Planning the upgrade
- Backup
- Rules of Engagement
- Service updates
  - Directory Services
  - Security
  - File Sharing
  - Web and Mail
  - Network Services
  - User database migration scenarios
- Challenges

Transitions...

Upgrade Methods

http://developer.apple.com/wwdc2005/

Clean Install

- Small deployment
- Data is backed up
- Can easily recreate limited number of users
- You keep nothing from the older server

Upgrade In Place

- Live upgrade on the server itself
- Backup and boot from CD
- Requires a ready-to-go backup if things go awry

Record and Configuration Migration

- Backup
- Erase and install
- Merge configuration files for services
- Import and copy over all pertinent databases
- Use Migration tools provided by Apple
  - /System/Library/ServerSetup/MigrationExtras/

Decisions Decisions…

- Think about your current deployment
- Which one makes the most sense to you?
- What tools are necessary to accomplish each method?

Backup Procedure

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Backup!

- Always have the backup ready to go in case of a failed upgrade
- Quick and dirty Xserve backup solution
  - Provides reliable method of restoring remote Xserve quickly
  - Leverages built-in tools
  - You can try this at home
    - 3 drives, two mirrored for server volume, one extra

Remote Xserve Backup Solution

- Install Mac OS X (not Server) on third partition
  - Use disk image if remote and copy disk image over
- Use same administrator name and password
- Turn on `ssh`, ARD, and copy over preferences.plist from Server
  - /Library/Preferences/SystemConfiguration/

Remote Xserve Backup Solution

- Boot from third disk and ensure login can occur
- While booted from third disk, create read/write disk image and clone server volume to disk image
- Boot back into server and set script to mount and sync disk image

Demo

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Where Are We?

- Decided on an installation method
- Backed up our current server
- Before we go any further…

Rules

http://developer.apple.com/wwdc2005/

Never update a production server with
out a full and current résumé

Some Rules

- Backup backup backup
- Note all service configuration files and double-back them up
  - In fact, just tar up /private
- Use FileMerge (or diff) to compare customized config files after upgrading
  - Some homegrown config file customization may have been "fixed" by the upgrade
- Poor DNS hygiene will be dealt with harshly in Tiger Server

More Rules

- Upgrade Remote Administration Software
  - 10.4 Server Admin Tools
  - Care must be taken when using 10.4 Server Admin tools on Panther Server
- Understand the role of `launchd`
  - May conflict with current cron jobs and the starting of services, especially customized Startup Items
  - Services handled by `xinetd` with customized config files should be tested to insure compatibility
  - See page 17 of the Mac OS X Server Upgrading and Migrating Guide for more info on `launchd`

Configuration Files

- XML Files in Panther
  - Should be opened with Property List Editor or favorite cli tool
- Binary in Tiger
  - Faster response time using binary files
  - Can be edited but should be converted to XML before editing

Handling Configuration File Conversion

- Use plutil to transfer file
  - `plutil -convert xml1 path-to-original-file -o path-to-config_name.plist`
  - Move file to different location
- Make edits then transfer back
- Upgrading keeps plist files…initially

The Installation

- Clean installs follow a set path
- In-place upgrades follow a much shorter path

In-place upgrade

- Requires the walk through of a few screens
  - Keyboard Layout
  - Serial Number
  - Administrator Name
  - Computer Names
  - Networking
  - Directory Usage
  - Services
  - Time
- Then a restart
- Save a copy of your setup in case you need to repeat this

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Server Service Changes

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Are there major service updates here that will affect my upgrade?

Server Service Changes

- Directory Services
- Security
- File Sharing
- Web, Mail
- Network Services
- Each service has at least one config file
  - Customized config files? Back to the configuration file slide, do not pass Go

Directory Services

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Directory Services

- NetInfo
- LDAP
- Binding

NetInfo

- NetInfo is still around in Tiger Server
- NFS mounts can still be located in here
- Mild local user changes
- Check for updated /config records (DHCP, lookupd…)

LDAP

- GUI addition of personal information schema in WGM
- Schema changes
  - 10.3.9 contains these changes

Binding

- If server is bound to another DS, unbind prior to upgrading then rebind
- May cause issues with LDAP Groups consisting of bound users

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Security

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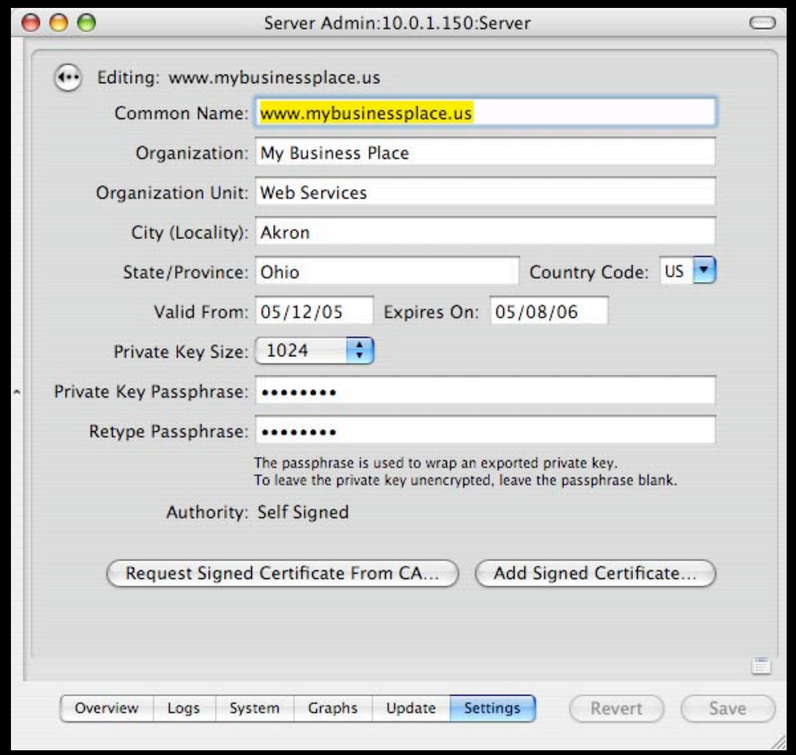
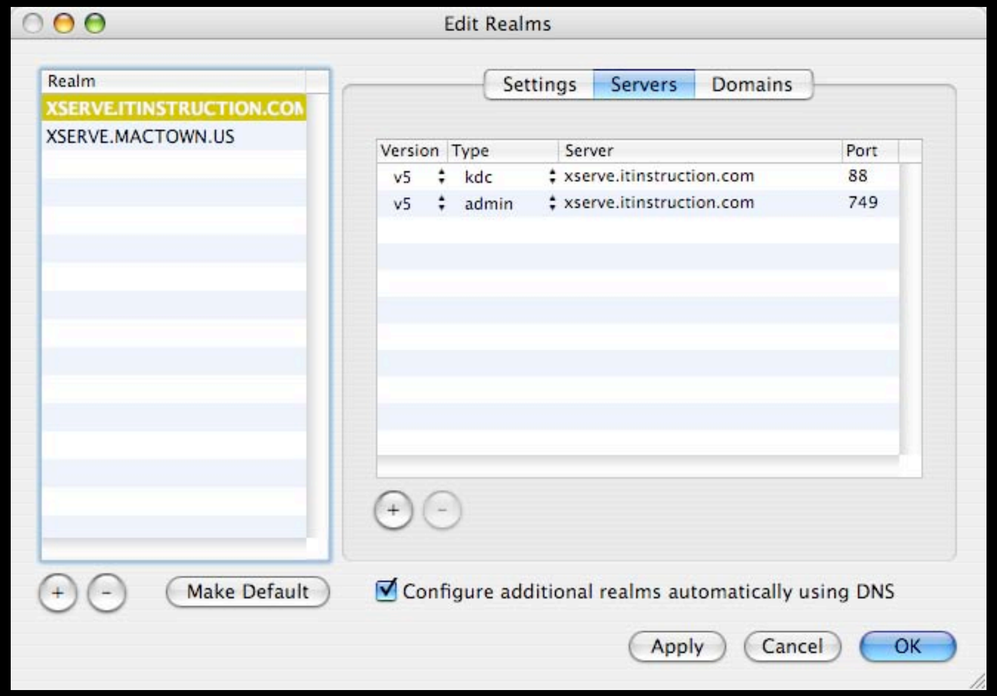
Security

- SSL
- KDC
- Open Directory
- Firewall
- VPN



SSL

- Rather than CLI, utilize Certification Manager in Server Admin
- Older certs still work and can be imported using GUI

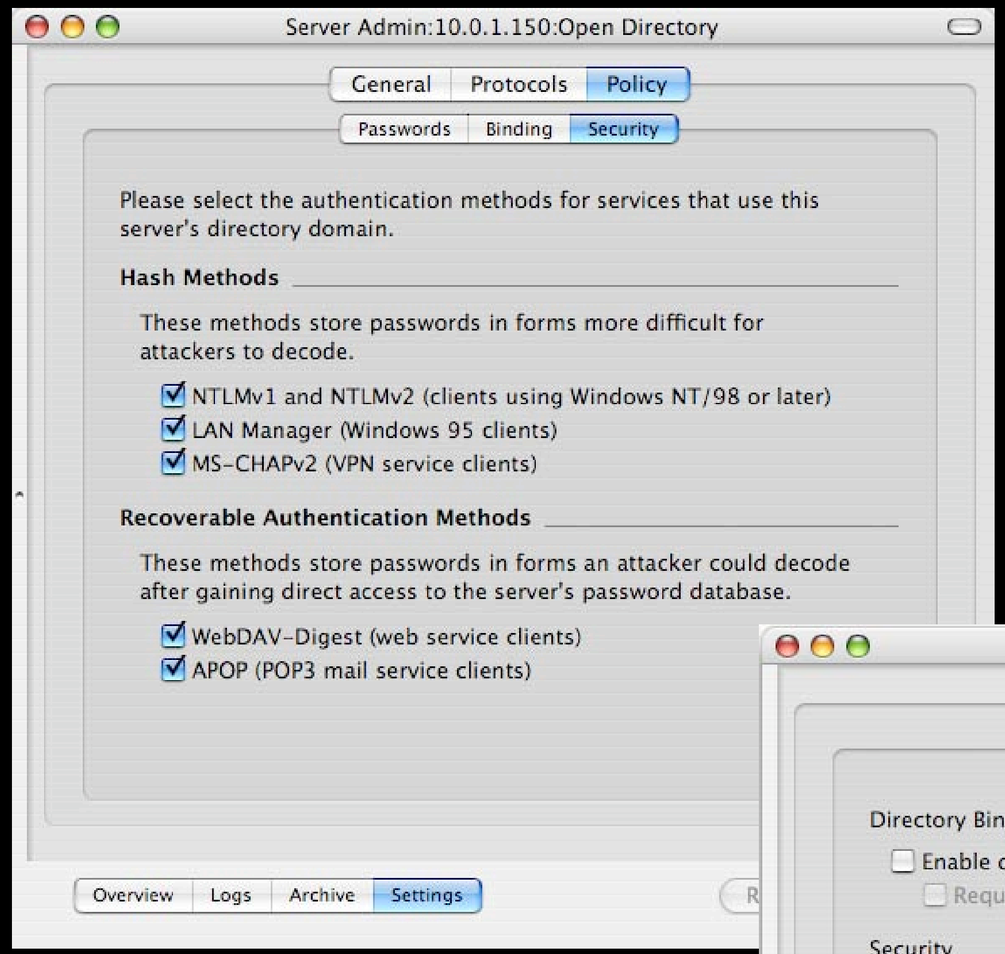


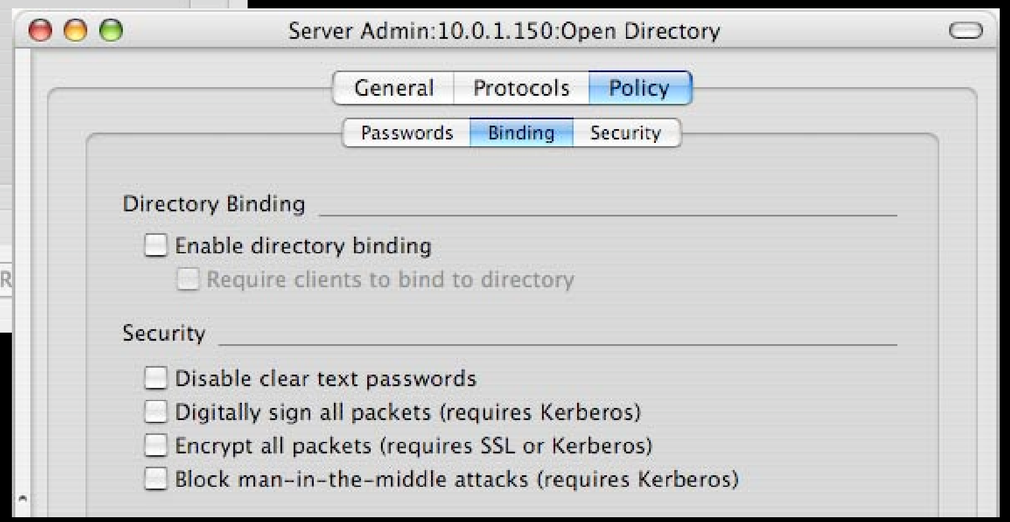
KDC

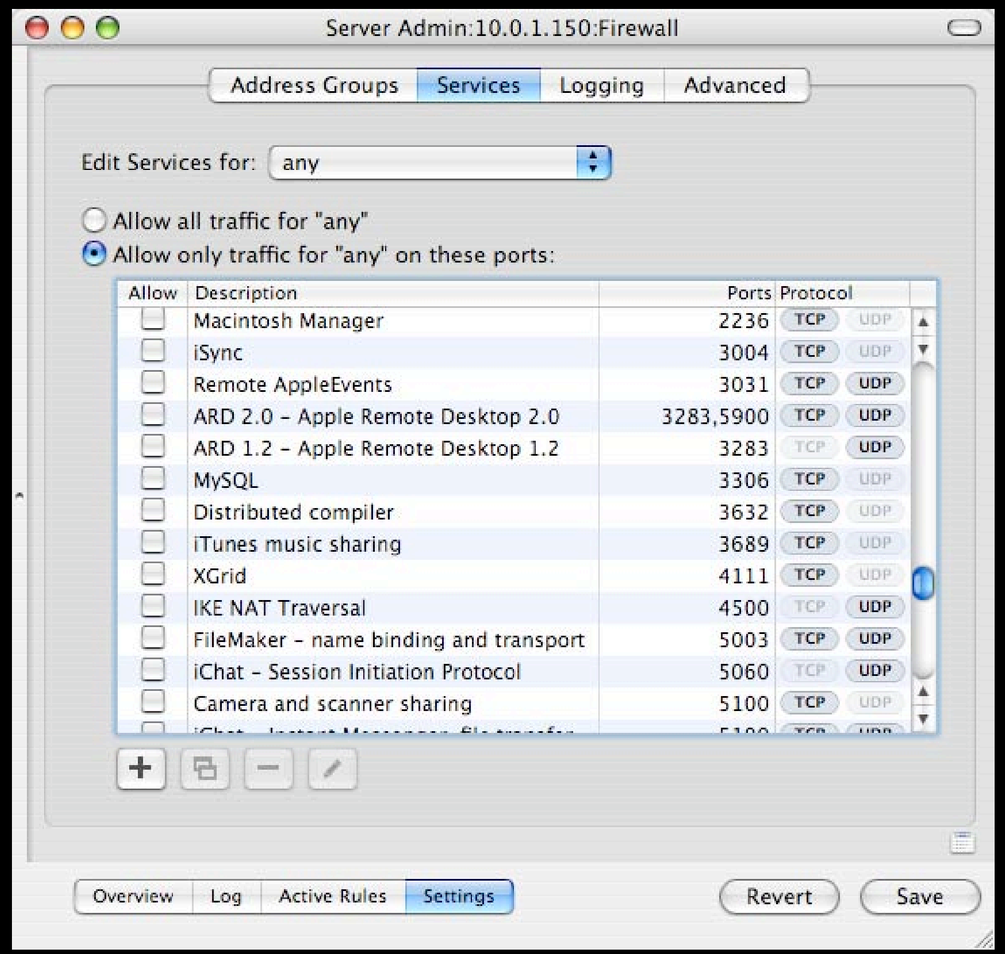
- New Kerberized services
- Upgrading may edit the edu.mit.Kerberos file
- Better configuration of the file (Edit Realms)
- Works on both Server and Client

Open Directory

- Interface to restrict Password Server protocols
- Provide authentication to directory binding

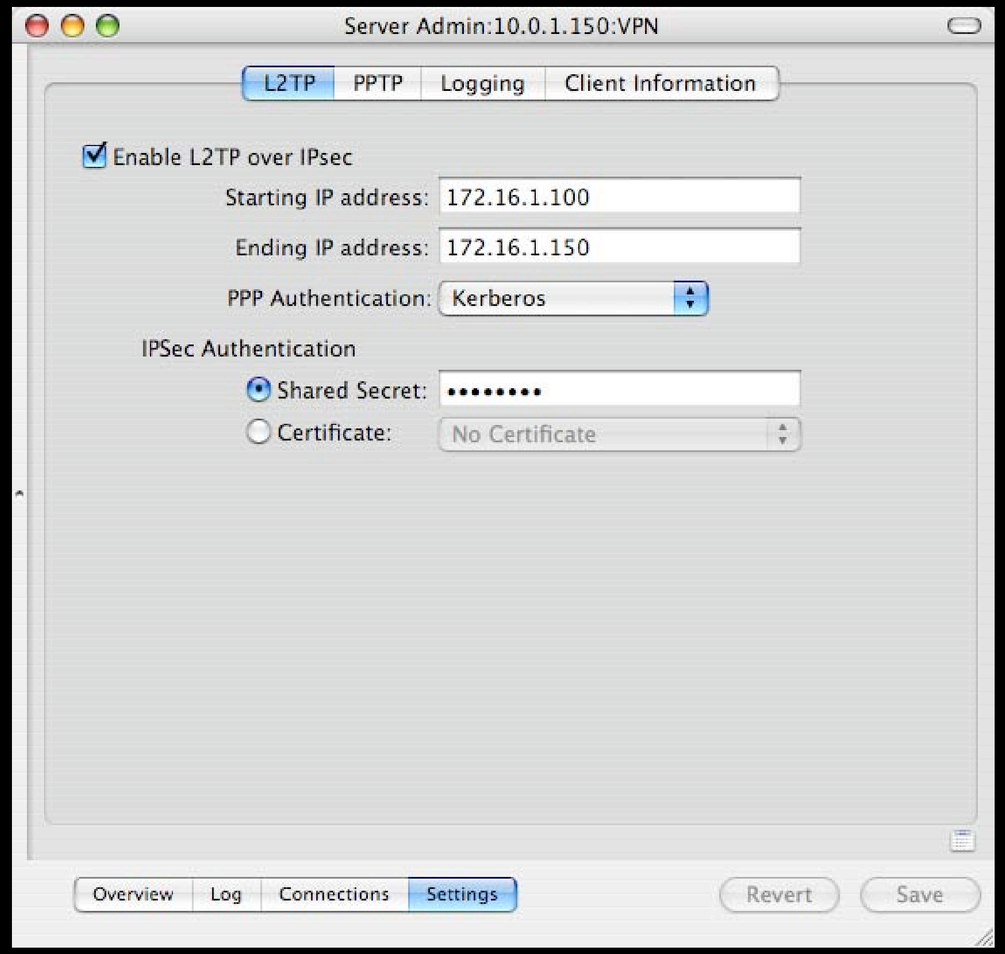






Firewall

- Improved GUI for `ipfw` allowing better understanding of protocols and rules
- GUI tweaking creates ipfw.conf.apple file
- ipfw.conf can still contain custom rules
- Upgrading places older rules in separate groups



VPN

- Now Kerberized for your enjoyment
- Authentication can now use SSL Certificate

Demo

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File Sharing

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File Sharing—AFP

- Link Aggregation
  - Card must support standard

File Sharing—SMB

Fun new authentication methods

- NTLMv2 and Kerberos
- Can now become either Primary Domain Controller or Backup Domain Controller
- SMB Share Points still writes to NIDB and then to smb.conf
  - Edits made to smb.conf may get overwritten on upgrade

File Sharing—FTP

- Check configuration
- Like many other services, now handled by `launchd`, not `xinetd`
- Custom FTP settings may need to be redone
- Kerberized FTP connections require an FTP client that works with the tickets
  - http://web.mit.edu/macdev/KfM/Common/Documentation/osx-kerberos-extras.html

Web and Mail

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Web

Apache updates

- New Modules
  - Spotlight for one
- Any customization to the httpd.conf file may be overwritten
- Certificates should be imported for ssl sites
- Weblog
  - Get with the “in” crowd

Web Updates

- Migration tool can ease web site upgrades
  - `sudo /System/Library/ServerSetup/MigrationExtras/49_webconfigmigrator`

Mail

- Backup any customized master.cf and/or main.cf files
  - GUI options may conflict with customized settings
- `sudo -u cyrusimap /System/Library/ServerSetup/SetupExtras/upgradedb`

Mail

- You may have a newer version of CLAM AV and SPAM Assassin
- GUI mail store repair button is a warm blanket
- For those still running 10.1 or 10.2, migration tool is included

Network Services

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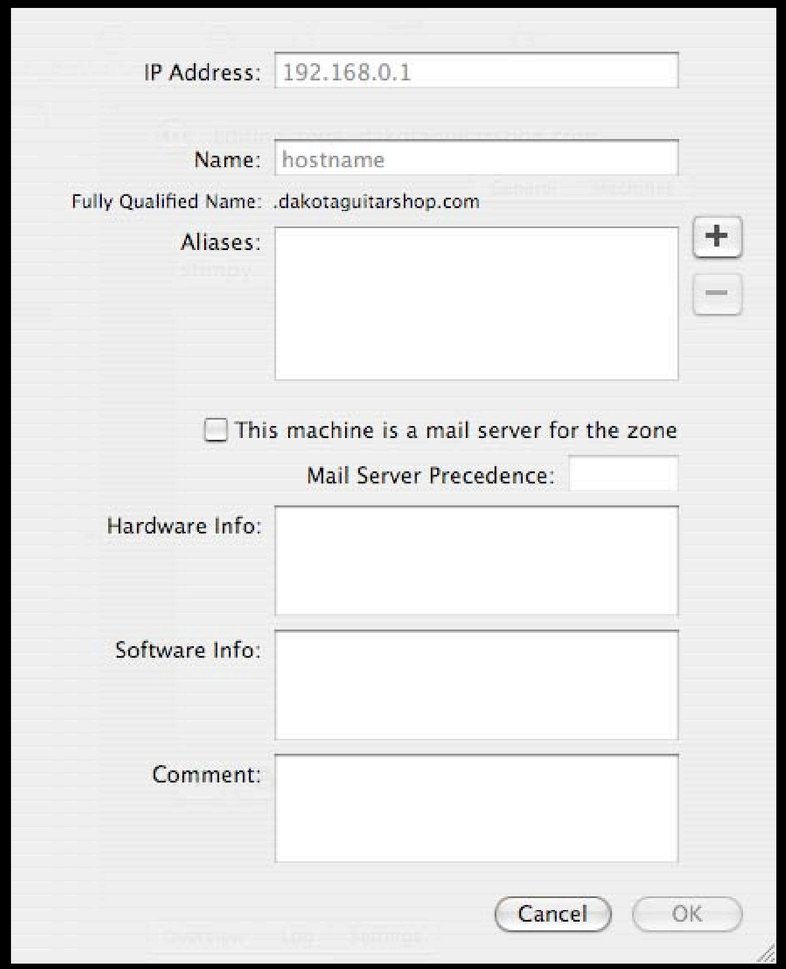
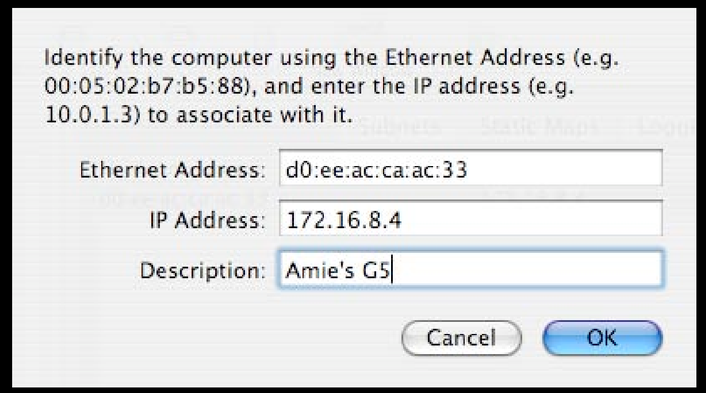


DNS Service

- Manual configurations should be backed up
  - CLI edits are best when coupled with

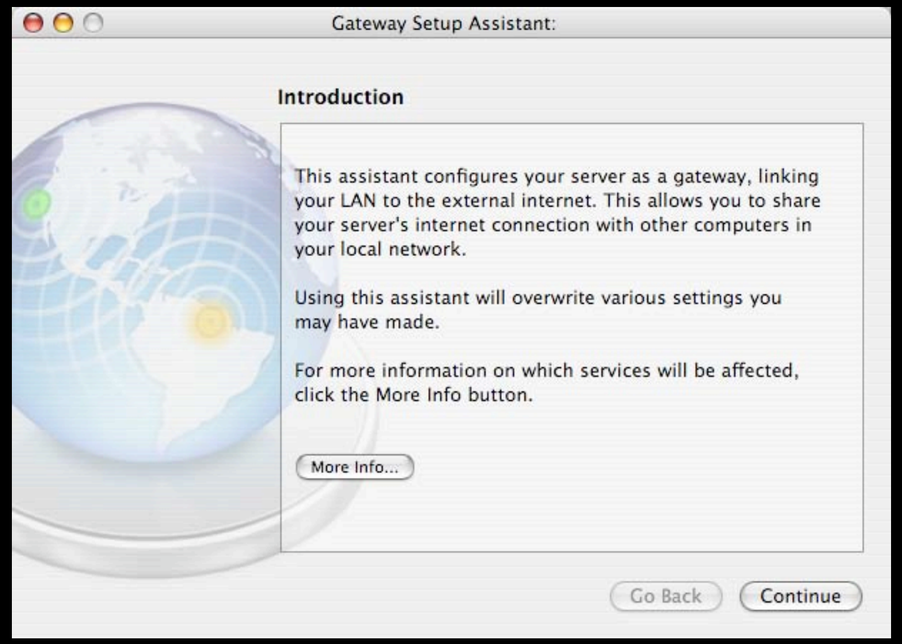
```
sudo serveradmin start DNS
```

  - Reverse records are now automatically created
    - (Applause goes here)



DHCP

- No more Googling for NIDB DHCP config parameters
  - Add MAC Address mapping
    - (More applause here please)



Gateway Setup Assistant

- Any changes using Gateway Setup Assistant after upgrading may alter settings for:
  - DHCP
  - NAT
  - VPN
  - Firewall

Additional Services

- Jabber
  - Did not exist in Panther Server
  - No upgrade options
- Xgrid Controller
  - Did not exist in Panther Server
  - No upgrade options

Demo

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Where are we?

- Regardless of your upgrade path
  - Customized config files need extra care and feeding
  - More Kerberized services
  - You handled each service and tested to insure it works as expected
  - You may have gained some GUI help or you may have chosen to sway more towards the CLI
- Now it seems all we have left is…

Migration of User Data

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Upgrade In-Place Scenarios

- Jaguar to Tiger Local
- Panther Local to Tiger Local
- Panther Master to Tiger Master

Jaguar To Tiger Local

- Jaguar Local
  - Local NIDB w/Shadow Hash Passwords
  - Upon upgrade, passwords should be changed for all users
- Jaguar Parent
  - If Password Server is used, you should force passwords changes for all users after upgrade
  - NetInfo Migration GUI option

Panther Local To Tiger Local

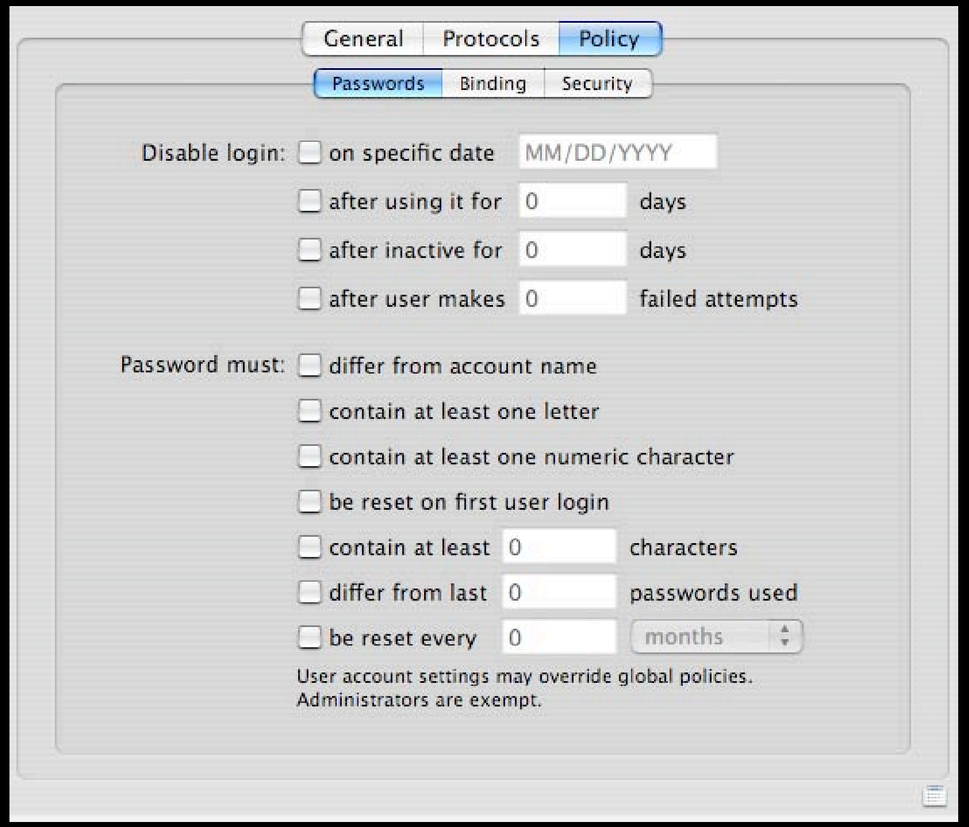
- Panther Local to Tiger Local
  - All users have Password Server password
  - Remind yourself, “Did I remove some protocols to increase security?”
    - APOP, NTLMv1, WebDAV, SMB-NT
    - Check after upgrading to insure there was no automatic re-enabling of these protocols, which can now be turned off in the GUI

Panther Local To Tiger Local (Cont.)

- New users will NOT have Open Directory (Password Server) password
  - Shadow Hash password can now utilize all pwpolicy parameters though
- Might be best to change all passwords to one type
  - Shadow Hash or Open Directory (Password Server)

Shadow Hash Policies

We are not going backwards



Panther Master to Tiger Master

- Bad idea to change original administrator password during configuration
- Cannot change Directory Usage
- Migration of LDAP data takes place in initial configuration
- LDAP Schema changes
  - May be remapped
  - If root dn mapping is changed, then should be repeated with upgrade
- Upgrading may overwrite customized edu.mit.Kerberos file

Panther Master to Tiger Master

- Take advantage of new features
  - Legacy Group records must be updated
    - Use WGM to perform process
  - Create KDC where there was none
    - `sudo slapconfig -kerberize`

Upgrade In-Place Master Synopsis

- Passwords still reside in Password Server Database
- KDC Principal Database still retains user principals
- Real world:
  - Did a `ldapsearch` prior to upgrade
  - Do another `ldapsearch` after the upgrade
  - Use FileMerge or `diff` to compare the two user lists
  - Best way to insure a smooth upgrade

Export/Import

- But what if I don’t WANT to do an upgrade in place??
- What if I want to do a clean install and import the stuff back in?
- Huh? What now smarty pants??

Export/Import Scenarios

- What sort of combinations should we be aware of?

Migration with User Databases and PWS

- Jaguar Server
  - Jaguar Server Local
    - Local NIDB
  - Jaguar Server Parent
    - Parent NIDB
  - Option to use Password Server
  - No KDC

Migration With User Databases and PWS

- Panther Server
  - Panther Server Local
    - Local NIDB using Password Server—no KDC
  - Panther Server Master
    - LDAP, Password Server, possible KDC

Now What?

- What should we do with regard to the user database?
- How do we extract the records?
- How do we import the records?
- What about the Password Server passwords?
- What about the Kerberos user principals?
- Hmmmmmmmmmm…

Exporting

- One option is to export the user and password databases
  - Clean install, then re-import
  - Changes to the schema not recognized or overwritten
  - UIDs should be re-associated to all user data to map group association correctly
  - Panther Master to Tiger Master use `ldapsearch`
    - `ldapsearch -LLL -x -h xserve.osxit.com -b "dc=osxit,dc=com" objectclass=apple-user > /Volumes/ps_backup/bkusers.ldif`

Exporting Passwords

- Use `mkpassdb` to make a copy of the database
  - `mkpassdb -backupdb > /path_to_folder`
- `krb5_util` is used to extract the principals
  - `sudo kdb5_util dump > /Volumes/ps_backup/kdc_bkp`
- Local has no KDC
- When you do an export then an import, you may not get all the new stuff

LDAP Importing

- New server administrator should have same info as administrator account on Panther server
  - Long Name
  - Short Name
  - Password
- `ldapadd` is used to pull in the database
  - Might want to remove old administrator account
  - `ldapadd -h 10.1.0.1 -f /path_to_file.ldif -x -W -D "uid=dadmin,cn=users,dc=osxit,dc=com"`

Password Importing

- Pop in authserver directory (Password Server)
  - `mkpassdb -mergedb /path_to_backup`
- Pop in older KDC database (KDC Principals)
  - `sudo kdb5_util load /Path_to_file`
- Have backup ready to go just in case
- Reboot

Demo

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Upgrade Replicas

- Why upgrade unless non-stop operation is critical
- Clean install of Tiger Server
  - Then become a Replica of new Master

Home Directories

- Zip, Copy, Unzip, Relax

Where are we?

- Depending on your path, you either moved or checked your databases
  - NetInfo
  - LDAP
  - Password Server
  - KDC
  - Home Directories

Challenges

- Customized config files
- Misconfigured DNS
- Learning all about LDAP when you really didn’t want to
  - Don’t worry it’s good for you

Transitions...

Wrap Up

- Upgrading is-and has always been-a process that was not totally error free
- Planning and testing are the best defense against a blown production server and server downtime

Related Sessions

Mac OS X Server Overview	Session 603 Tuesday 9:00AM
Mac OS X Server Feedback Forum	Session 614 Wednesday 10:30AM
Leveraging the Power of ACLs	Session 617 Wednesday 2:00PM
Managing Clients in the Enterprise	Sesion 621 Wednesday 5:00PM
Integrating MAc OS X into a Heterogeneous Environment	Session 625 Thursday 9:00AM

Related Sessions

Monitoring Your System with ARD and Open Source Tools	Session 629 Thursday 2:00PM
Enterprise Messaging Solutions	Session 633 Friday 9:00AM
Network Authentication	Session 636 Friday 2:00PM
Real-world Desktop Management Practices	Sesion 644 Friday 5:00PM
Building Automator Actions for System Administrators	Session 646 Friday 5:00PM

More Information

http://developer.apple.com/wwdc2005/

Documentation, Sample Code, and Other Resources

http://developer.apple.com/wwdc2005/

Other Resources

Tiger Server Migration Guide
http://images.apple.com/server/pdfs/Migration_v10.4.pdf

Tiger Server Documentation PDFs
http://www.apple.com/server/documentation/

AFP548.com
http://www.afp548.com

Apple Certified Training
http://train.apple.com

Apple Mac OS X Server Listserv
http://lists.apple.com/mailman/listinfo/macos-x-server

Apple Discussion Groups
http://discussions.info.apple.com/

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